

YANAGISAWA et al. -- Appln. No. 09/600,799

CLAIM LISTING:

1 - 45. (Cancelled)

46. (Currently Amended) A charge processing device comprising:
detecting means for detecting position information indicating a position where a moving body is located on the basis of a received signal from a satellite;
matching means for matching the position information with predetermined map information;
setting means for, based on the map information, setting an area where a charge is applied which area corresponds to a predetermined area in the map information;
receiving means for receiving toll data from a ~~location remote to the moving body~~ ground station including charge data, for each of a plurality of different moving body types determined on the basis of a size of the moving body type, relating to the area where a charge is applied;
deciding means for, based on a result of a matching by the matching means, deciding an entry state indicating whether or not the moving body has at least entered into the area where a charge is applied; and
generating means for generating, based on a result of a deciding by the deciding means, charge information for the moving body, by using the received toll data.

47. (Previously Presented) The charge processing device according to claim 46, the charge processing device further comprising location information detecting means for detecting, based on the position information, location information indicating date and time the moving body is located in the area in which a charge is applied, wherein the deciding means decides, based on the result of the matching by the matching means and a result of a detection by the location information detecting means, the entry state including a location state of the moving body within the area in which a charge is applied.

48. (Previously Presented) The charge processing device according to claim 46, wherein the generating means decides the entry state including a congestion state caused by moving bodies located in the area in which a charge is applied.

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49. (Previously Presented) The charge processing device according to claim 46, wherein the generating means is further provided with storage means in which predetermined toll data corresponding to the entry state is stored in advance, and the generating means generates the charge information using the toll data in the storage means.

50. (Currently Amended) A charge processing device comprising:
host position detecting means for detecting a position of a host moving body on the basis of a received signal from a satellite;

transceiving means for, by wireless communication, transmitting position information of the host moving body to a ground station, and for receiving charge toll data from a ~~location remote to the moving body~~ the ground station including charge data, for each of a plurality of different moving body types determined on the basis of a size of the moving body type, relating to an area where a charge is applied which area is set based on predetermined map information in correspondence with a predetermined area in the map information; and

charge processing means for performing charge processing relating to the area in which a charge is applied, at a predetermined period and based on a result of a transmission and reception by the transceiving means, wherein

the host position detecting means, the transceiving means, and the charge processing means are able to be mounted on a moving body.

51. (Previously Presented) The charge processing device according to claim 50, wherein the charge processing means performs the charge processing using an IC card on which balance information is stored.

52-66. (Cancelled)

67. (Currently Amended) A charge processing device comprising:
detecting means for detecting position information indicating a position where a moving body is located on the basis of a received signal from a satellite;

matching means for matching predetermined map information and the position information;

setting means for, based on the map information, setting an area where a charge is applied which area corresponds to a predetermined area in the map information;

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deciding means for, based on a result of a matching by the matching means, deciding an entry state indicating whether or not the moving body has at least entered into the area where a charge is applied; and

making means for, based on a result of a decision by the deciding means, generating charge information for the moving body in the area where a charge is applied, as well as making, at a predetermined timing, a charge history of the generated charge information; and

transmitting means for transmitting the charge history of the charge information generated by the making means to a ground station which performs a charge settlement function, and the ground station is in charge of the area where a charge is applied, which is a geographical area.

wherein the making means generates charge information for each of a plurality of areas where a charge is applied, and accumulates the generated charge information as charge history, and

wherein the charge history is based on at least one of a number of times the moving body enters into the area where a charge is applied and a length of time the moving body is located in the area where the charge is being applied.

68. (Cancelled)

69. (Previously Presented) The charge processing device according to claim 67, wherein the detecting means detects the position information using satellite signals from satellites.

70. (Currently Amended) A charge processing system comprising:
in-vehicle communication means comprising:

detecting means for detecting position information indicating a position where a moving body is located on the basis of a received signal from a satellite;

matching means for matching predetermined map information and the position information;

setting means for, based on the map information, setting an area where a charge is applied which area corresponds to a predetermined area in the map information;

deciding means for, based on a result of a matching by the matching means, deciding an entry state indicating whether or not the moving body has at least entered into the area where a charge is applied; and

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making means for, based on a result of a decision by the deciding means, generating charge information for the moving body in the area where a charge is applied, as well as making, at a predetermined timing, a charge history of the generated charge information; and transmitting means for transmitting the charge history of the charge information generated by the making means to a ground station in charge of the area where a charge is applied, which is a geographical area.

wherein the charge history is based on at least one of a number of times the moving body enters into the area where a charge is applied and a length of time the moving body is located in the area where the charge is being applied,

wherein the transmission means transmits charge history in accordance with an input transmission request, and

wherein the making means generates charge information for each of a plurality of areas where a charge is applied, and accumulates the generated charge information as charge history, and

~~on-road communication means located on the moving body and~~ having request means for performing the transmission request and processing means for performing charge settlement processing in a predetermined processing area and based on a transmitted charge history.

71. (Previously Presented) The charge processing system according to claim 70, wherein the processing means is further provided with altering means for altering the amount of the charge settlement based on a duration of time until an arrival in the processing area.

72. (Currently Amended) A charge processing device comprising:
detecting means for detecting position information indicating a position where a moving body is located on the basis of a received signal from a satellite;

a toll card capable of being inserted and removed for storing a predetermined geographical area in which a charge is applied which geographical area is set based on predetermined map information in correspondence with a predetermined area in the map information;

generating means for, at a predetermined period, generating charge information for the moving body based on a result of a detection by the detecting means and the area in which a charge is applied stored in a loaded storage means, and

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wherein area information of the predetermined geographical area where a charge is applied is stored in the toll card and includes toll data showing that the predetermined geographical area where a charge is applied is divided into sub-areas and a charge amount for each sub-area is set such that the closer a sub-area is to the center of the predetermined geographical area, the higher the charge amount becomes.

73. (Previously Presented) The charge processing device according to claim 72, wherein the generating means is provided with a reading means for reading a result of a detection by the detecting means and the area in which a charge is applied stored in the loaded storage means, and generates charge information from the read position information and the area in which a charge is applied.

74-93. (Cancelled)

94. (Previously Presented) The charge processing device according to claim 46, wherein the toll data further includes charge data for each of a plurality of time zones.

95. (Previously Presented) The charge processing device according to claim 46, wherein the area where a charge is applied is divided into sub-areas, and a charge amount for each sub-area is set such that the closer a sub-area is to the center of the area where a charge is applied, the higher the charge amount becomes.

96. (Previously Presented) The charge processing device according to claim 95, wherein the area where a charge is applied is divided into the sub-areas by substantially concentric circles.

97. (Previously Presented) The charge processing device according to claim 50, wherein the toll data further includes charge data for each of a plurality of time zones.

98. (Previously Presented) The charge processing device according to claim 50, wherein the area where a charge is applied is divided into sub-areas, and a charge amount for each sub-area is set such that the closer a sub-area is to the center of the area where a charge is applied, the higher the charge amount becomes.

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99. (Previously Presented) The charge processing device according to claim 67, wherein the charge history is based on both the number of times the moving body enters into the area where a charge is applied and the length of time the moving body is located in the area where the charge is being applied.

100. (Previously Presented) The charge processing device according to claim 70, wherein the charge history is based on both the number of times the moving body enters into the area where a charge is applied and the length of time the moving body is located in the area where the charge is being applied.

101. (New) The charge processing device according to claim 46, wherein the receiving means for receiving toll data receives said toll data at a time when the moving body is proximate to the area where a charge is applied.

102. (New) The charge processing device according to claim 46, wherein said ground station is in charge of a geographical area.

103. (New) The charge processing device according to claim 50, wherein the receiving means for receiving toll data receives said toll data at a time when the moving body is proximate to the area where a charge is applied.

104. (New) The charge processing device according to claim 50, wherein said ground station is in charge of a geographical area.